Abstract

A method for tracking particles and life forms in three dimensions and in time. The present invention applies a numerical reconstruction approach to digital in-line holographic microscopy images in order to generate a time sequence hologram representing the trajectory of objects such as particles and life forms. By subtracting consecutive (in time) holograms of a particle sample volume and then adding the resulting differences, a final hologram is constructed that contains the time evolution of the object trajectory free from spurious background interference effects.